

Claims:

We claim:

1. A process kit for a vacuum processing chamber, the vacuum processing chamber comprising a chamber body defining an interior processing region, the process kit comprising:
 - a pumping liner configured to be placed within the processing region of the processing chamber, the pumping liner comprising:
 - a circumferential body having an upper surface and a lower surface, and
 - a plurality of pumping holes disposed along the body; and
 - a C-channel liner configured to be placed along an outer diameter of the pumping liner, the C-channel liner comprising:
 - a circumferential body portion having an upper surface and lower surface,
 - a circumferential upper arm disposed proximate the upper surface of the body portion of the C-channel liner,
 - a lower arm disposed around a selected radial portion of the body portion of the C-channel liner, the lower arm disposed along the bottom surface of the body portion of the C-channel liner,
 - a channel portion in the C-channel liner defined between the body portion of the C-channel liner, the upper arm, the lower arm, and an outer diameter of the pumping liner, and
 - a pumping port liner opening;
 - wherein an upper interlocking feature is formed between the upper surface of the pumping liner and the upper arm of the C-channel liner;
 - wherein a lower interlocking feature is formed between the lower surface of the pumping liner and the lower arm of the C-channel liner; and
 - wherein the upper and lower interlocking features inhibit parasitic pumping within the processing region.

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2. The process kit of claim 1, wherein the pumping liner is configured to rest on the C-channel liner.

3. The process kit of claim 1, wherein the upper interlocking feature comprises:

a shoulder circumferentially placed along the upper surface of the pumping liner body; and

an upper lip circumferentially disposed along the upper arm, the upper lip of the C-channel liner configured to interlock with the shoulder of the pumping liner body.

4. The process kit of claim 1, wherein the lower interlocking feature comprises:

a lower lip disposed along a radial portion of the lower surface of the pumping liner body; and

a lower shoulder along a radial portion of the lower arm, the lower shoulder of the C-channel liner configured to interlock with the lower lip of the pumping liner.

5. A process kit for a vacuum processing chamber, the vacuum processing chamber comprising a chamber body defining an interior processing region, the process kit comprising:

a pumping liner configured to be placed within the processing region of the processing chamber, the pumping liner comprising:

a circumferential body,

a plurality of pumping holes disposed along the pumping liner body,

a shoulder circumferentially placed along an upper surface of the pumping liner body, and

a lower lip disposed along a radial portion of a lower surface of the pumping liner body; and

a C-channel liner configured to be placed along an outer diameter of the

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pumping liner body within the processing region of the processing chamber, the C-channel liner comprising:

- a circumferential body,
- an upper arm,
- a lower arm,
- a channel portion defined by the upper arm, the lower arm, the body of the C-channel liner, and the body of the pumping liner,
- an upper lip circumferentially disposed along the upper arm, the upper lip of the C-channel liner configured to interlock with the shoulder of the pumping liner body, and
- a lower shoulder along a radial portion of the lower arm, the lower shoulder of the C-channel liner configured to interlock with the lower lip of the pumping liner and to also provide a pumping port liner opening.

6. The process kit of claim 5, further comprising:
 - a middle liner configured to reside below the pumping liner and the C-channel liner in the processing region.
7. The process kit of claim 6, further comprising:
 - a lower liner configured to reside below the middle liner in the processing region.
8. The vacuum processing chamber of claim 5, wherein the vacuum processing chamber further comprises a pumping port liner in fluid communication with the pumping port liner opening of the C-channel liner.
9. A vacuum processing chamber for processing a substrate, the vacuum processing chamber comprising a chamber body defining an interior processing region, and a process kit disposed within the processing chamber, the process kit comprising:
 - a pumping liner configured to be placed within the processing region of the

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processing chamber, the pumping liner comprising:

- a circumferential body,
- a plurality of pumping holes disposed along the pumping liner body,
- a shoulder circumferentially placed along an upper surface of the pumping liner body, and
- a lower lip disposed along a radial portion of a lower surface of the pumping liner body; and

a C-channel liner configured to be placed along an outer diameter of the pumping liner body within the processing region of the processing chamber, the C-channel liner comprising:

- a circumferential body,
- an upper arm,
- a lower arm,
- a channel portion defined by the upper arm, the lower arm, the body of the C-channel liner, and the body of the pumping liner,
- an upper lip circumferentially disposed along the upper arm, the upper lip of the C-channel liner configured to interlock with the shoulder of the pumping liner, and
- a lower shoulder along a radial portion of the lower arm, the lower shoulder of the C-channel liner configured to interlock with the lower lip of the pumping liner and to also provide a pumping port liner opening.

10. The vacuum processing chamber of claim 9, further comprising:
 - a pumping port liner in fluid communication with the pumping port liner opening of the C-channel liner.
11. The vacuum processing chamber of claim 10, further comprising:
 - a seal member providing a seal between
 - an interface of the C-channel liner with the pumping port liner, and
 - an interface of the pumping liner with the pumping port liner.

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12. The vacuum processing chamber of claim 11, wherein the seal member has at least an outer surface fabricated from a material selected from the group consisting of a polished aluminum, a polymer coating, Teflon, ceramics, and quartz.

13. A tandem vacuum processing chamber for processing a substrate, the tandem vacuum processing chamber comprising:

- a body;

- a pair of interior processing regions provided within the chamber body, the interior processing regions being in fluid communication with one another; and

- a process kit disposed within each of the interior processing regions, each process kit comprising:

- a pumping liner configured to be placed within the respective processing region, the pumping liner comprising:

- a circumferential body,

- a plurality of pumping holes disposed along the pumping liner body,

- a shoulder circumferentially placed along an upper surface of the pumping liner body, and

- a lower lip disposed along a radial portion of a lower surface of the pumping liner body;

- a C-channel liner configured to be placed along an outer diameter of the pumping liner body within the processing region, the C-channel liner comprising:

- a circumferential body,

- an upper arm,

- a lower arm,

- a channel portion defined by the upper arm, the lower arm, the body of the C-channel liner, and the body of the pumping liner,

- an upper lip circumferentially disposed along the upper arm, the upper lip of the C-channel liner configured to interlock with the shoulder of the pumping liner, and

- a lower shoulder along a radial portion of the lower arm, the lower

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shoulder of the C-channel liner configured to interlock with the lower lip of the pumping liner and to also provide a pumping port liner opening; and a pair of upper pumping port liners, each upper pumping port liner being in fluid communication with a respective pumping port liner opening.

14. The tandem vacuum processing chamber of claim 13, wherein the interior processing regions are maintained in fluid communication with one another through a pressure equalization port liner.

15. The tandem vacuum processing chamber of claim 14, wherein at least an outer surface of the pressure equalization port liner is fabricated from a smooth material selected from the group consisting of a polished aluminum, a polymer coating, Teflon, ceramics, and quartz.